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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
595 MINER ROAD
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EXAMINER	
ODOM, CURTIS B	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	09/812,431	HERLEIKSON ET AL.	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 17-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 12, 13, 17-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinast (previously cited in Office Action 8/13/2004) in view of Abraham (U. S. Patent No. 6, 407, 987).

Regarding claim 1, Kinast discloses a method for measuring a desired condition, comprising:

directing (Fig. 4, column 7, lines 12-42, and column 13, lines 32-column 14, line 24) a spread spectrum signal into a medium;

detecting (Fig. 4, column 7, lines 42-67 and column 8, lines 24-41) a parameter (intensities of the signal) that corresponds to the signal directed into the medium;

generating (Fig. 4, column 7, lines 42-67 and column 8, lines 24-41) a measured parameter signal (photodetector signal) from the detected parameter; and

analyzing (Fig. 4, column 7, lines 42-67) the measured parameter signal to determine the desired condition.

Kinast does not disclose generating a clock signal that is used to spread the signal directed into a medium across a desired frequency by randomizing the clock signal with a random number generator and a divider. However, there are many well-known methods used to generate a clock signal that is used to create a spread spectrum signal. Kinast does disclose using a clock signal to create a pseudo-random spread spectrum signal (Fig. 4, element 44, column 7, lines 12-42 and column 13, line 52-column 14, line 12). However, Kinast does not disclose how this clock signal is generated. Abraham discloses a random signal generator for generating a clock signal that is used to spread a signal directed into a medium across a desired frequency by randomizing a clock signal with a random number generator and a divider (Fig. 18, column 18, lines 29-52). Using a randomizer and divider to produce the clock signal used to create the spread spectrum signal of Kinast would not change the functionality of the device. Therefore, it would have been obvious to one skilled in the art at the time the invention was made that clock signal of Kinast could have been generated by the teachings of Abraham to also produce the clock signal which would allow the creation of a spread spectrum signal. Spread spectrum signals are highly resistant to noise and interference across a propagation medium.

Regarding claim 12, which inherits the limitations of claim 1, Kinast discloses transmitting a spread spectrum light signal into the medium (Fig. 4, column 7, lines 12-42, and column 13, lines 32-column 14, line 24).

Regarding claim 13, which inherits the limitations of claim 1, Kinast discloses analyzing detected red and/or infrared light level to determine the oxygenation level of a patient's blood (column 7, lines 12-67).

Regarding claim 17, Kinast et al. discloses a spread spectrum measurement device (Fig. 4), comprising:

means (Fig. 4, column 7, lines 12-42, and column 13, lines 32-column 14, line 24) for directing a spread spectrum signal into a medium;

means (Fig. 4, column 7, lines 42-67 and column 8, lines 24-41) for detecting a parameter (intensities of the signal) that corresponds to the signal directed into the medium;

means (Fig. 4, column 7, lines 42-67 and column 8, lines 24-41) for generating a measured parameter signal (photodetector signal) from the detected parameter; and

means for analyzing (Fig. 4, column 7, lines 42-67) the measured parameter signal to determining a desired condition.

Kinast does not disclose means for generating a clock signal that is used to spread the signal directed into a medium across a desired frequency by randomizing the clock signal with a random number generator and a divider. However, there are many well-known methods used to generate a clock signal that is used to create a spread spectrum signal. Kinast does disclose using a clock signal to create a pseudo-random spread spectrum signal (Fig. 4, element 44, column 7, lines 12-42 and column 13, line 52-column 14, line 12). However, Kinast does not disclose how this clock signal is generated. Abraham discloses a random signal generator for generating a clock signal that is used to spread a signal directed into a medium across a desired frequency by randomizing a clock signal with a random number generator and a divider (Fig. 18, column 18, lines 29-52). Using a randomizer and divider to produce the clock signal used to create the spread spectrum signal of Kinast would not change the functionality of the device. Therefore, it would have been obvious to one skilled in the art at the time the invention was made that clock

signal of Kinast could have been generated by the teachings of Abraham to also produce the clock signal which would allow the creation of a spread spectrum signal. Spread spectrum signals are highly resistant to noise and interference across a propagation medium.

Regarding claim 18, Kinast discloses a spread spectrum measurement device at least partially comprised within a computer readable medium (wherein it is obvious to implement hardware into software because the software performs the same function of the hardware for less expense, greater adaptability, and greater flexibility) comprising:

logic (Fig. 4, column 7, lines 12-42, and column 13, lines 32-column 14, line 24) configured to direct a spread spectrum signal into a medium;

logic (Fig. 4, column 7, lines 42-67 and column 8, lines 24-41) configured to detect a parameter (intensities of the signal) that corresponds to the signal directed into the medium;

logic (Fig. 4, column 7, lines 42-67 and column 8, lines 24-41) configured to generate a measured parameter signal (photodetector signal) from the detected parameter; and

logic (Fig. 4, column 7, lines 42-67) configured to analyze the measured parameter signal to determine a desired condition.

Kinast does not disclose logic configured to generate a clock signal that is used to spread the signal directed into a medium across a desired frequency by randomizing the clock signal with a random number generator and a divider. However, there are many well-known methods used to generate a clock signal that is used to create a spread spectrum signal. Kinast does disclose using a clock signal to create a pseudo-random spread spectrum signal (Fig. 4, element 44, column 7, lines 12-42 and column 13, line 52-column 14, line 12). However, Kinast does not disclose how this clock signal is generated. Abraham discloses a random signal generator for

generating a clock signal that is used to spread a signal directed into a medium across a desired frequency by randomizing a clock signal with a random number generator and a divider (Fig. 18, column 18, lines 29-52). Using a randomizer and divider to produce the clock signal used to create the spread spectrum signal of Kinast would not change the functionality of the device. Therefore, it would have been obvious to one skilled in the art at the time the invention was made that clock signal of Kinast could have been generated by the teachings of Abraham to also produce the clock signal which would allow the creation of a spread spectrum signal. Spread spectrum signals are highly resistant to noise and interference across a propagation medium.

Regarding claim 19, Kinast discloses a spread spectrum measurement device (Fig. 4), comprising:

a medium interface (Fig. 4, Sensor, column 4, line 58-column 5, line 2);

a signal transmitter (Fig. 4, elements 40 and 44, column 7, lines 12-42, and column 13, lines 32-column 14, line 24) configured to produce a spread spectrum input signal, the signal transmitter being in electrical communication with the medium interface;

a signal detector (Fig. 4, blocks 58, 66, and 68, column 7, lines 42-67 and column 8, lines 24-41) configured to detect a spread spectrum signal at the medium interface, the signal detector being in electrical communication with the medium interface; and

a signal processor (Fig. 4, block 76, column 7, lines 42-67) configured to analyze the spread spectrum signal detected by the signal detector.

Kinast does not disclose a random signal generator for generating a clock signal that is used to spread the signal directed into a medium across a desired frequency by randomizing the clock signal with a random number generator and a divider. However, there are many well-

known methods used to generate a clock signal that is used to create a spread spectrum signal. Kinast does disclose using a clock signal to create a pseudo-random spread spectrum signal (Fig. 4, element 44, column 7, lines 12-42 and column 13, line 52-column 14, line 12). However, Kinast does not disclose how this clock signal is generated. Abraham discloses a random signal generator for generating a clock signal that is used to spread a signal directed into a medium across a desired frequency by randomizing a clock signal with a random number generator and a divider (Fig. 18, column 18, lines 29-52). Using a randomizer and divider to produce the clock signal used to create the spread spectrum signal of Kinast would not change the functionality of the device. Therefore, it would have been obvious to one skilled in the art at the time the invention was made that clock signal of Kinast could have been generated by the teachings of Abraham to also produce the clock signal which would allow the creation of a spread spectrum signal. Spread spectrum signals are highly resistant to noise and interference across a propagation medium.

Regarding claim 22, which inherits the limitations of claim 19, Kinast disclose the signal transmitter transmits a spread spectrum light signal (Fig. 4, column 7, lines 12-42, and column 13, lines 32-column 14, line 24).

3. Claims 1-7, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al. (previously cited in Office Action 8/13/2004) in view of Abraham (U. S. 6, 407, 987).

Regarding claim 1, Fuller et al. discloses a method for measuring a desired condition, comprising:

directing (Fig. 2, block 50, Figs. 5A and 5B, block 260, column 5, lines 11-25 and 48-59, and column 5, line 66-column 6, line 21) a spread spectrum signal into a medium;

detecting (Figs. 5A and 5B, block 250, column 13, lines 24-60) a parameter (real and imaginary components of the reflected data signal) that corresponds to the signal directed into the medium;

generating (Figs, 5A and 5B, block 280, column 13, lines 53-60) a measured parameter signal (impedance signal) from the detected parameter; and

analyzing (Figs. 5A and 5B, block 280, column 16, lines 19-24) the measured parameter signal to determine the desired condition.

Fuller et al. does not disclose generating a clock signal that is used to spread the signal directed into a medium across a desired frequency by randomizing the clock signal with a random number generator and a divider.

However, there are many well-known methods used to generate a clock signal that is used to create a spread spectrum signal. Fuller et al. discloses using an oscillator to generate a clock signal used to create a spread spectrum signal (column 6, lines 1-14). Abraham discloses generating a clock signal that is used to spread a signal directed into a medium across a desired frequency by randomizing a clock signal with a random number generator and a divider (Fig. 18, column 18, lines 29-52). Therefore, it would have been obvious to one skilled in the art at the time the invention was made that clock generation method of Fuller et al. could have been modified with the teachings of Abraham to also produce a spread spectrum clock signal which would also allow the creation of a spread spectrum signal. Spread spectrum signals are highly resistant to noise and interference across a propagation medium.

Regarding claims 2-5, which inherit the limitations of claim 1, Fuller et al. discloses transmitting a spread spectrum voltage signal into the medium (column 9, lines 54-62) and detecting a parameter that corresponds to the signal directed into the medium comprises measuring a voltage signal (column 8, lines 19-27, column 9, lines 54-62, and column 16, lines 19-24). Fuller et al. and Abraham do not disclose transmitting a current signal into the medium and measuring a current signal for detecting a parameter of the signal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made since the measured parameter signal generated from the detected parameter comprises of an impedance signal (column 13, lines 53-60), that a current signal or a voltage signal could have been directed into the medium, and a current or voltage signal could have been measured to detect a parameter in the signal since an impedance signal can be derived from either a voltage or current signal. Impedance can be measured by inputting a current signal into a medium and measuring a voltage drop across the medium due to impedance (and vice versa). Thus, inputting and measuring a current or voltage signal would produce the same result (impedance signal). The operation of choosing a voltage or current signal is deemed a design choice and does not constitute patentability.

Regarding claim 6, which inherits the limitations of claim 1, Fuller et al. discloses generating an impedance signal (column 13, lines 53-60).

Regarding claim 7, which inherits the limitations of claim 6, Fuller et al. discloses analyzing the impedance signal to determine a contact impedance of a device electrode (column 2, lines 57-65 and column 15, line 48-column 16, line 24).

Regarding claim 19, Fuller et al. discloses a spread spectrum measurement device (Figs. 2, 5A, and 5B), comprising:

a medium interface (Fig. 5A, elements 202A and 202B, and Fig. 5B, elements 310 and 320);

a signal transmitter (Fig. 2, block 50, Figs. 5A and 5B, block 260, column 5, lines 11-25 and 48-59, and column 5, line 66-column 6, line 21) configured to produce a spread spectrum input signal, the signal transmitter being in electrical communication with the medium interface;

a signal detector (Figs. 5A and 5B, block 250, column 13, lines 24-60) configured to detect a spread spectrum signal at the medium interface, the signal detector being in electrical communication with the medium interface; and

a signal processor (Figs. 5A and 5B, block 280, column 16, lines 19-24) configured to analyze the spread spectrum signal detected by the signal detector.

Fuller does not disclose a random signal generator configured to generate a clock signal that is used to spread the signal directed into a medium across a desired frequency by randomizing the clock signal with a random number generator and a divider.

However, there are many well-known methods used to generate a clock signal that is used to create a spread spectrum signal. Fuller et al. discloses using an oscillator to generate a clock signal used to create a spread spectrum signal (column 6, lines 1-14). Abraham discloses a random signal generator for generating a clock signal that is used to spread a signal directed into a medium across a desired frequency by randomizing a clock signal with a random number generator and a divider (Fig. 18, column 18, lines 29-52). Therefore, it would have been obvious to one skilled in the art at the time the invention was made that clock generation method/device

of Fuller et al. could have been modified with the teachings of Abraham to also produce a spread spectrum clock signal which would also allow the creation of a spread spectrum signal. Spread spectrum signals are highly resistant to noise and interference across a propagation medium.

Regarding claim 20, which inherits the limitations of claim 19, Fuller et al. discloses the signal transmitter transmits a spread spectrum electrical signal (column 5, lines 11-25 and 48-59, and column 5, line 66-column 6, line 21).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al. (previously cited in Office Action 8/13/2004) in view of Abraham (U. S. Patent No. 6, 407, 987) and in further view of Nappholz et al. (previously cited in Office Action 8/13/2004).

Regarding claim 8, Fuller et al. and Abraham disclose all the limitations of claim 8 (see rejection of claim 6) except the analyzing the impedance signal to determine a heart rate of a patient.

Nappholz et al. discloses analyzing an impedance signal from electrodes to determine a heart rate of a patient (column 10, line 1-17). Fuller et al. also discloses using electrodes to determined an impedance signal but does not disclose these electrodes are arranged to detect an impedance signal near the heart (column 2, lines 57-65 and column 15, line 48-column 16, line 24). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method/device of Fuller et al. and Abraham with the teachings of Nappholz et al. and place the electrodes in an arrangement to detect an impedance signal from the heart from which a heart rate can be determined to increase the overall functioning capacity and flexibility of the device by now being able to not only detect blood concentration levels, but also heart rate.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al. (previously cited in Office Action 8/13/2004) in view of Abraham (U. S. Patent No. 6, 407, 987) and New Jr. et al (U. S. Patent No. 6, 494, 829)

Regarding claim 9, Fuller et al. discloses all the limitations of claim 9 (see rejection of claim 6) except the analyzing the impedance signal to determine a respiration rate of a patient.

New Jr. et al. discloses analyzing an impedance signal from electrodes to determine a respiration rate of a patient (column 8, line 59-column 9, line 44). Fuller et al. also discloses using electrodes to determined an impedance signal but does not disclose these electrodes are arranged to detect an impedance signal near the chest cavity (column 2, lines 57-65 and column 15, line 48-column 16, line 24). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method/device of Fuller et al. and Abraham with the teachings of New Jr. et al. and place the electrodes in an arrangement to detect an impedance signal from the chest cavity from which a respiration rate can be determined to increase the overall functioning capacity and flexibility of the device by now being able to not only detect blood concentration levels, but also respiration rate.

6. Claims 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al. (previously cited in Office Action 8/13/2004) in view of Abraham (U. S. Patent No. 6, 407, 987) and in further view of Papadakis et al. (previously cited in Office Action 8/13/2004).

Regarding claims 10 and 21, Fuller et al. and Abraham disclose all the limitations of claims 10 and 21 (see rejection of claims 1 and 19) except transmitting a spread spectrum ultrasound signal into the medium.

Papadakis et al. discloses transmitting a spread spectrum signal ultrasound signal into a medium to detect changes in the properties within the medium (column 3, lines 21-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method/device of Fuller et al. with the teachings of Papadakis et al. and allow the transmission of a spread spectrum signal ultrasound signal into the medium since it is known that ultrasound signals can be used to detect desired conditions such fetal heart rate. This would increase the overall functioning capacity and flexibility of the device of Fuller et al. and Abraham by now being able to not only detect blood concentration levels, but also desired conditions which can be detected using ultrasound signals.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuller et al. (previously cited in Office Action 8/13/2004) in view of Abraham (U. S. Patent No. 6, 407, 987) in further view of Papadakis et al. (previously cited in Office Action 8/13/2004) and in further view of Feldman et al. (previously cited in Office Action 8/13/2004).

Regarding claim 11, which inherits the limitations of claim 10, Fuller et al., Abraham, and Papadakis et al. disclose all the limitations of claim 11 (see rejection of claim 10), except analyzing echoes of the ultrasound signal to determine the heart rate of a patient.

Feldman et al. discloses analyzing echoes (reflected energy) of an ultrasound signal to determine a fetal heart rate (column 1, lines 28-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method/device of Fuller et al., Abraham and Papadakis et al. with the teachings of Feldman et al. and analyze the ultrasound signal to determine the heart rate of a patient which would increase the overall functioning capacity and flexibility of the device of Fuller et al., Abraham and Papadakis et al.

by now being able to not only detect blood concentration levels, but also heart rate using the ultrasound signal.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
March 13, 2005

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